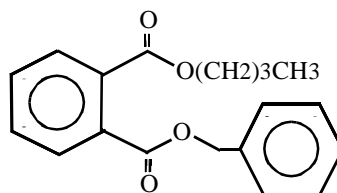


## BUTYL BENZYL PHTHALATE

CAS Registry Number: 85-68-7

Molecular Formula:  $C_{19}H_{20}O_4$



Butyl benzyl phthalate is a clear, oily liquid with a slight odor. Butyl benzyl phthalate is also combustible (Sax, 1987).

### Physical Properties of Butyl Benzyl Phthalate

---

Synonyms: benzyl butyl phthalate

Molecular Weight:	312.39
Boiling Point:	370 °C
Melting Point:	-35 °C
Flash Point:	198 °C (390 °F)
Vapor Density:	10.8 (air = 1)
Density/Specific Gravity:	1.113 - 1.121 at 25/25 °C (water = 1)
Vapor Pressure:	$8.6 \times 10^{-6}$ mm Hg at 20 °C
Log Octanol/Water Partition Coefficient:	4.91
Water Solubility:	2.69 mg/l at 25 °C
Henry's Law Constant:	$1.3 \times 10^{-6}$ atm-m <sup>3</sup> /mole
Conversion Factor:	1 ppm = 12.8 mg/m <sup>3</sup>

---

(Howard, 1989; HSDB, 1993; Sax, 1989)

## SOURCES AND EMISSIONS

### A. Sources

Butyl benzyl phthalate is used as a plasticizer for polyvinyl and cellulosic resins and as an organic intermediate. The major use of butyl benzyl phthalate is in flooring materials with minor amounts being used in household products (HSDB, 1993). The primary stationary sources that have reported emissions of butyl benzyl phthalate in California are paperboard container and box manufacturers, public and related furniture manufacturing, and commercial printing manufacturers (ARB, 1997b).

### B. Emissions

Toxic Air Contaminant Identification

List Summaries - ARB/SSD/SES

September 1997

The total emissions of butyl benzyl phthalate from stationary sources in California are estimated to be at least 3,300 pounds per year, based on data reported under the Air Toxics “Hot Spots” Program (AB 2588) (ARB, 1997b).

#### C. Natural Occurrence

No information about the natural occurrence of butyl benzyl phthalate was found in the readily-available literature.

### **AMBIENT CONCENTRATIONS**

No Air Resources Board data exist for ambient concentrations of butyl benzyl phthalate.

### **INDOOR SOURCES AND CONCENTRATIONS**

In the fall of 1990, a study conducted in southern California, measurements of butyl benzyl phthalate were collected inside 125 homes. At each home, two consecutive 12-hour samples were collected. Concurrent samples were also collected outside of 65 of those homes. The average indoor butyl benzyl phthalate concentration was 56 nanograms per cubic meter. Indoor levels were approximately five times higher than outdoor levels (ARB, 1992c).

### **ATMOSPHERIC PERSISTENCE**

Butyl benzyl phthalate will distribute between the gas and particle phases in the atmosphere (Atkinson, 1995). Volatilization of butyl benzyl phthalate to the atmosphere is not expected to be significant (Howard, 1990).

### **AB 2588 RISK ASSESSMENT INFORMATION**

Butyl benzyl phthalate emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

### **HEALTH EFFECTS**

Probable routes of human exposure to butyl benzyl phthalate are inhalation, ingestion, and dermal contact.

Non-Cancer: Butyl benzyl phthalate has been associated with adverse effects on the central nervous system in humans. Butyl benzyl phthalate has also caused adverse effects to the liver and thymus of animals. High amounts have caused severe testicular atrophy in animals

(HSDB, 1995). The United States Environmental Protection Agency (U.S. EPA) has not established a Reference Concentration (RfC) or an oral Reference Dose (RfD) for butyl benzyl phthalate (U.S. EPA, 1995a).

Cancer: Butyl benzyl phthalate is classified by the U.S. EPA as Group C: Possible human carcinogen based on limited animal evidence (leukemia in female rats) and inadequate human evidence (U.S. EPA, 1995a). The International Agency for Research on Cancer has classified butyl benzyl phthalate in Group 3: Not classifiable as to its human carcinogenicity (IARC, 1987a).

